

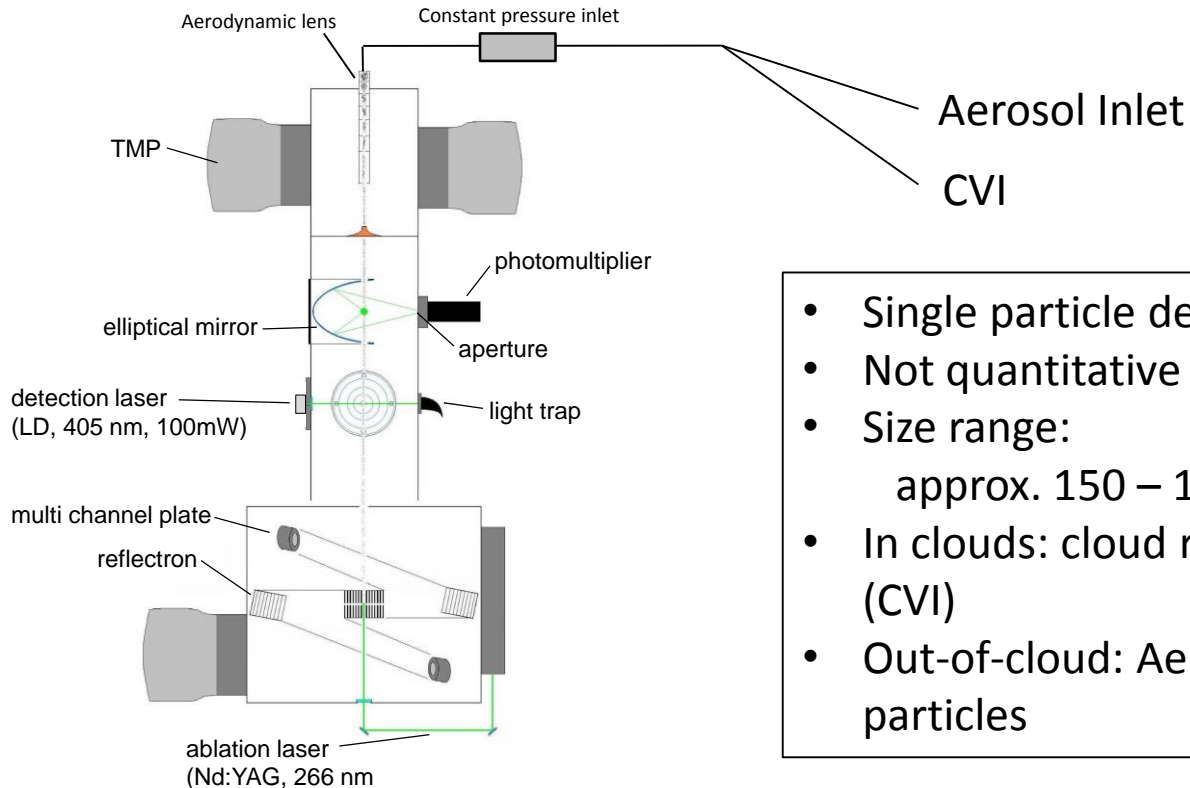
Single particle analysis of cloud residuals and aerosol particles during ACLOUD with ALABAMA: Quantification of biogenic and anthropogenic sources of arctic aerosols



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Aircraft-based Laser **AB**lation **AE**rosol **MA**ss Spectrometer (ALABAMA)

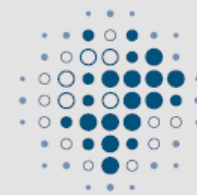


- Single particle detection
- Not quantitative
- Size range:
approx. 150 – 1000 nm
- In clouds: cloud residuals (CVI)
- Out-of-cloud: Aerosol particles

Brands et al., AS&T, 2011, Roth et al., ACP, 2016, Schmidt et al., ACP, 2017, Köllner et al., ACPD, 2017



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Highlight I: Amine-containing particles

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Research article

Particulate trimethylamine in the summertime Canadian high Arctic lower troposphere

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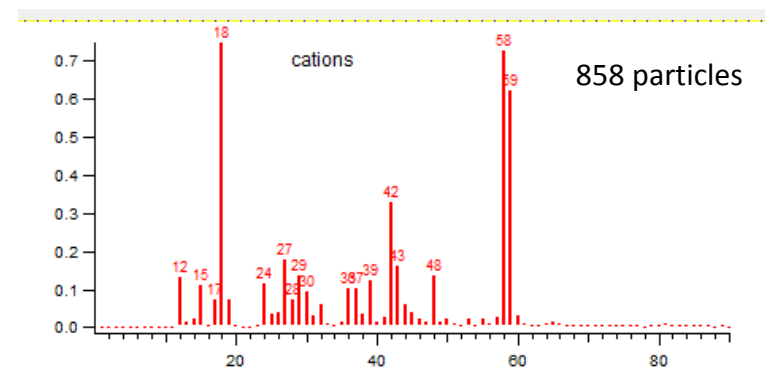
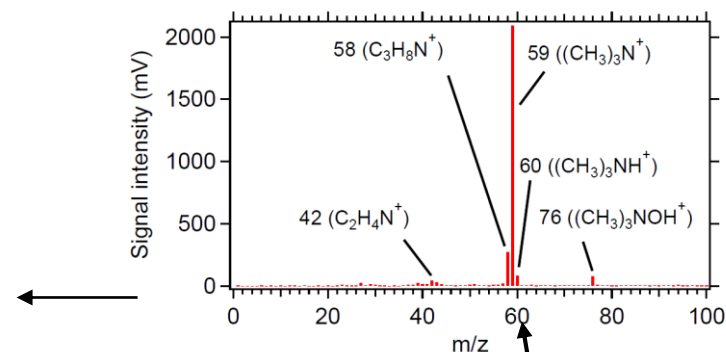
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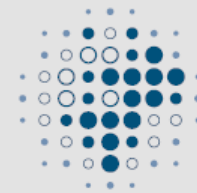
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Received: 31 May 2017 – Accepted for review: 02 Jun 2017 – Discussion started: 06 Jun 2017

Previous observation of amine-containing particles in the Arctic Resolute Bay, July 2014 (NETCARE, ALABAMA on Polar 6) → Biogenic particle source

Laboratory mass spectrum

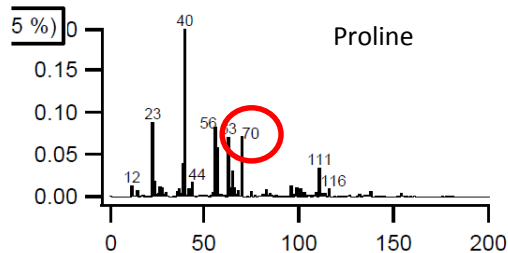
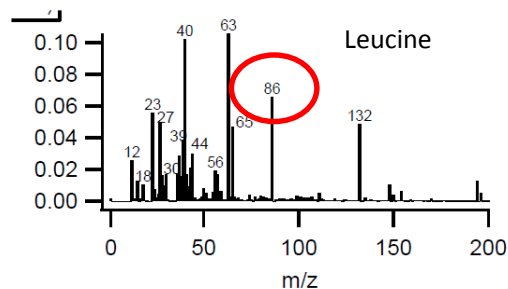




Highlight II: Amino acids in cloud residuals?

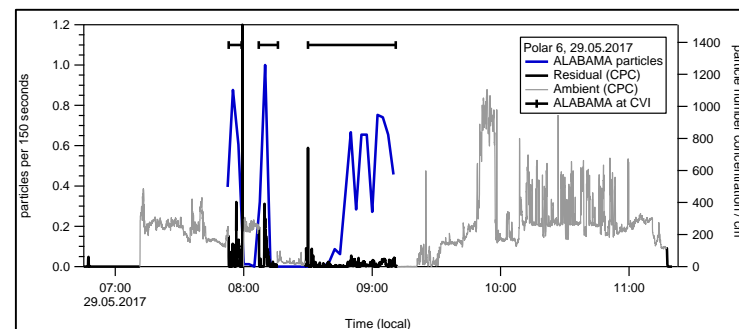
-> Biological source for
- CCN
- INP (ice nucleating particles) ??

- Amino acids have been observed previously in Arctic aerosol

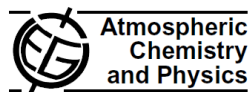


Schmidt et al., ACP, 2017

This particle type is observed only in cloud residuals



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Amino acids in Arctic aerosols

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